

Have Computers, Will Travel: Providing On-site Library Instruction in Rural Health Facilities Using a Portable Computer Lab

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ABSTRACT. The Saskatchewan Health Information Resources Partnership (SHIRP) provides library instruction to Saskatchewan's health care practitioners and students on placement in health care facilities as part of its mission to provide province-wide access to evidence-based health library resources. A portable computer lab was assembled in 2007 to provide hands-on training in rural health facilities that do not have computer labs of their own. Aside from some minor inconveniences, the introduction and operation of the portable lab has gone smoothly. The lab has been well received by SHIRP patrons and continues to be an essential part of SHIRP outreach.

KEYWORDS. Canada, digital libraries, library instruction, rural health care providers

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INTRODUCTION

Health sciences education in Saskatchewan has changed. A shift to a distributed model of learning has taken place in the University of Saskatchewan's health education programs in general, and in the College of Medicine in particular, where students go out on placement in health regions across the province as part of their education.¹ Prior to 2003, access to a full-fledged health library outside of the University was unavailable in all but one of the province's 13 health regions. While students in rural areas could access the University of Saskatchewan Library's online collections via proxy server, these resources remained off limits to the health care practitioners they were working with and learning from. This, coupled with an increased emphasis on evidence-based practice, meant that the Library had to adjust its services for both the students and the professionals they worked with in rural areas in order to help the College of Medicine meet accreditation standards. A task force formed by the Saskatchewan Health Libraries Association put together a proposal for provincial funding for an initiative that would bring access to library resources to all health care practitioners in Saskatchewan, regardless of their location. Their proposal resulted in the creation of the Saskatchewan Health Information Resources Partnership (SHIRP). This article provides a brief introduction to SHIRP and focuses on the library instruction that takes place in the province's rural health regions using the SHIRP portable computer lab.

BACKGROUND

Saskatchewan is one of Canada's three prairie provinces, home to just over one million people scattered across 651,036 square kilometers, or approximately 251,366 square miles.² The province is divided into 13 health regions that are responsible for delivering most health care services within their geographic boundaries. However, there are a number of health care practitioners delivering care who are not members of these organizations, most notably private pharmacists, dental professionals, and therapists. SHIRP is an online library that provides health care practitioners and students in health programs with province-wide access to a core set of electronic textbooks, journals, and databases. Unlike more traditional consortia, where member institutions pool their resources to purchase library subscriptions, all SHIRP funding is supplied by the Government of Saskatchewan. SHIRP was implemented in a series of four phases:

Phase One (2003/2004)

The University of Saskatchewan Library's online resources relevant to the health sciences were supplemented to allow for more online access to essential health information resources.

Phase Two (2004/2005)

Access to a subset of the University of Saskatchewan's electronic resources was extended to employees of the three health regions that accept the most student placements: Prince Albert Parkland Health Region, Saskatoon Health Region, and Regina Qu'Appelle Health Region. These regions are also home to the province's three largest urban centers. Targeted funding was also provided to these three health regions for the purposes of hiring library staff to serve the employees of their respective regions.

Phase Three (2005/2006)

Access to online resources was extended to the remaining ten rural health regions. Two new positions were created at the University of Saskatchewan — the SHIRP Coordinator and the SHIRP Outreach Services Librarian — to manage the SHIRP program and serve the rural health regions.

Phase Four (2006/2007 - 2007/2008)

Province-wide licenses for health were negotiated, which extended access to electronic resources to those practitioners who are unaffiliated with the 13 health regions; health students and faculty at post-secondary institutions in the province; and health related provincial government departments. Organizations with their own library Web sites were able to integrate the SHIRP resources into their Web presence, and individuals without an organizational library could access the resources via the SHIRP Web site <<http://www.shirp.ca>>.

With the completion of phase four, any health care provider that is part of a legislated practice group employed in the province of Saskatchewan — including physicians, nurses, midwives, dietitians, pharmacists, dentists, physical therapists, and others — is entitled to access 144 online books, over 6,000 full-text journals, and 14 health databases via the SHIRP Web site at no cost; all they need is an Internet connection. Even though Saskatchewan is a largely rural province, Internet infrastructure is well developed and the availability of Internet access continues to improve. High speed Internet is provided via satellite service in remote areas where regular high speed Internet is not available.³ As of the time of writing this article, SaskTel, the province's major

communications provider, has nearly reached their goal of 100% Internet coverage in the province, with only 13 communities still waiting for service.⁴ This ubiquitous access to the Internet ensures that, no matter where they are located, health care practitioners and students on placement have access to critical evidence-based health information. While there are currently similar initiatives underway to provide access to health library resources in other Canadian provinces, SHIRP was the first to provide health library resources on such a broad scale and at this level of inclusivity.

SHIRP TRAINING

Ensuring that patrons know how to effectively use the resources that are available to them is an important part of SHIRP's mission to provide the province's health community with access to essential library resources. Since 2005, library instruction for health care practitioners that do not fall under the umbrella of the three larger health regions has been provided at no cost by the SHIRP Outreach Services Librarian. A few sessions have been delivered via the provincial telehealth system, and the Outreach Librarian has recently begun experimenting with online video tutorials, but to date traveling to various rural health facilities to conduct on-site training sessions has been the primary approach to SHIRP training.

Training session participants include a diverse mix of individuals from a variety of departments and disciplines at different stages in their careers, and with varying levels of computer literacy. Unlike the academic setting where students usually attend library instruction sessions out of obligation for a course, the majority of SHIRP training

participants take part in the sessions voluntarily; many participants attend SHIRP training on their days off because that is the only way that they can fit the session into their demanding workload. Training sessions are held in a variety of locations — anywhere from meeting rooms and offices, to hallway nursing stations and lounge spaces. Up until December 2006, SHIRP training included a mix of presentation style demonstrations and computer lab training; the latter was offered only where a facility had a computer lab available for use.

An analysis of participant feedback up to and including December 2006 showed that 18% of participant comments reflected a preference for hands-on training without being prompted for comments specifically related to the method of instruction. Members of the health professions are generally accustomed to a more hands-on approach to learning. Medical education has been using simulations to teach clinical skills for 40 years,⁵ and according to Dobbin, nurses “are generally most comfortable with concrete experience and active experimentation modes of learning.”⁶ Research has also shown that a person is most likely to forget the largest portion of what they have learned within twenty-four hours, and while every individual has his or her own preferred learning style, most people learn and retain more when they are actively engaged. On average, 75% of the material taught is retained after twenty-four hours when learning by doing is the primary method of instruction used in a lesson, compared to only 30% retention when demonstration is used as the primary method of instruction.⁷ It was clear to staff in the SHIRP office that adjusting the training to incorporate more hands-on time with the resources and to reduce the number of demonstrations would benefit SHIRP patrons, and make the time and resources spent on travel to rural health facilities a better investment.

However, most of these facilities did not have computer labs and traveling to another facility to take part in computer lab training would pose a difficulty for practitioners, even when they attended training on their own time, because they would often be required to travel to a larger community to do so.

A portable computer lab seemed to be a reasonable option for providing hands-on training in rural health facilities, so a literature search was conducted to identify whether other libraries had utilized a portable computer lab in the rural setting. There were a number of articles published on using portable computer labs for library instruction, but with the exception of two initiatives, these articles focused primarily on using a portable classroom to deliver training down the hall from the library, rather than on the road. The two initiatives of interest were undertaken by the Louisiana State University Health Sciences Center-Shreveport (LSUHSC-S) in 2004, and the Penn State Farm Management Extension Program in 1997.

The LSUHSC-S assembled a wireless laptop computer lab with the aid of National Network of Libraries of Medicine funding, and began taking library instruction on the road to public health workers in Northern Louisiana in 2005. Their outreach experience had many similarities to the SHIRP context. LSUHSC-S staff were involved in training health care practitioners with various information needs, varying levels of computer literacy, and who face “tight staffing requirements, high workloads, and lack of funds for travel” to take part in training sessions.⁸ Their sessions were very well received by public health workers, and they learned valuable lessons along the way about the importance of being prepared for local technical requirements and policies, the logistics

involved in arranging and planning a session, and the need for flexibility when teaching in a health care setting.⁸

The Penn State Farm Management Extension Program assembled their portable computer lab with partial funding from the Farm Credit System of Pennsylvania to improve agricultural producers' proficiency with general and specialized computer applications that are used in farm business management. The portable lab was a success, with session participants indicating in formal evaluations that the hands-on workshops substantially improved their computer knowledge. Perhaps most importantly, the portable lab allowed training opportunities to be offered to a previously under-served population, with over half of the participants indicating that they had not attended extension events in the previous year.⁹ Over the years, the portable lab became such a success that demand for lab training required the purchase of two more portable computer labs.¹⁰ Technology had changed in the ten years since the Extension program began using their portable lab, making some of the challenges encountered — like being unable to hold classes on using the Internet because they would not be able to find a venue with enough telephone jacks — irrelevant in 2007; however, the benefits of taking computers to patrons in rural areas would apply in the SHIRP context as well.

SHIRP TRAINING USING THE PORTABLE LAB

To address the need for hands-on training in more facilities, SHIRP created a portable lab composed of the following:

- Five widescreen laptops with spare nine cell batteries
- Five cordless optical mice
- A wireless broadband router
- An LCD projector
- A custom travel case, equipped with a telescoping handle and recessed wheels
- Relevant cords and cables

A conscious effort was made to address office ergonomics as much as possible by purchasing widescreen laptops, which are less strenuous to the eye, and provide a less cramped keyboard, and cordless optical mice. Hazards associated with cords were also reduced by using a wireless router.

The wireless router has been the key to flexibility in terms of where training can be held. If a network connection is not available in the room set aside for training, which is not an unusual occurrence, the router can be located in a nearby room and beam a signal to the laptops. Because the portable lab relies on a facility's local network to connect to the Internet, security is an important issue. The router is configured to prevent unauthorized wireless access to local networks, and each laptop is equipped with anti-virus software and Windows Firewall. Prior to visiting an independent facility or a health region with the portable lab for the first time, local IT staff are contacted to obtain permission to connect to the local network and to address any concerns that they may have.

The training sessions themselves vary in terms of the resources covered, depending on the needs and interests of the participants involved, but generally speaking

they are two hours long and have two main components. First, the group is guided through the resources together, using example topics supplied by the participants where possible. Afterwards the participants work independently on practice questions supplied to them or on topics of their own interest, with individual help available when needed. In cases where the number of participants is greater than the number of computers available, an offer is made to conduct multiple sessions, rather than force participants to share the laptops. Offering multiple sessions ensures that all training participants have the chance to gain hands-on experience with the resources and can allow more people to participate when only a certain number of staff may leave their regular duties at a time. Although it is ideal to travel for five or more participants, there is no minimum number of participants required to arrange for a training session, as per SHIRP policy.

THE RESPONSE

The portable lab has been in operation since August 2007 and has been used as the primary method for training, except in a few instances where a local computer lab is available for use or a demonstration is preferred by the group who has requested training. Training participants have been very enthusiastic about the portable lab to date. In addition to the informal feedback received, participants are asked to complete a formal evaluation that includes three open ended questions: “What would you change about today’s session?”, “What was the best part of today’s session?”, and “Other comments.” The response rate for the evaluations has been approximately 72%. Out of all of the evaluations collected over the past two years, 51% have included positive comments

about the portable lab or indicated a preference for hands-on training. Eighty-one percent of these comments were collected in response to the question “What was the best part of today's session?” Examples of comments received from the formal training session evaluations include:

- *It was awesome having a laptop available to do hands-on.*
- *[It was] worth getting up for; I'm on nights.*
- *Thanks for coming on site, so nice not to travel.*
- *I think you have to have the hands on lab to feel more comfortable with SHIRP.*
- *This was a much more productive session [than the presentation-style session previously attended].*
- *For me it was helpful as I'm not used to being on the computer for research.*
- *[The best part of this session was] the hands on we didn't get last time.*
- *The use of the computer was very helpful.*
- *Should be mandatory training for all employees.*

The SHIRP portable lab has also made an impression on health librarians in other areas of Canada. A poster presentation on the SHIRP portable lab at the 2008 Canadian Health Libraries Association conference caught the interest of other health librarians, such as those at the Northern Ontario School of Medicine (NOSM), who also provide library instruction to health care practitioners that are dispersed over a large area. NOSM has two campuses that are located 1,200 kilometers (approximately 744 miles) from one another and like the University of Saskatchewan's College of Medicine, NOSM follows a

distributed model of learning where students go on rotation in a variety of practice settings throughout Northern Ontario.¹¹ With the library's patron base scattered, the library faces similar training issues as SHIRP, and in April 2009 they launched four mobile units of their own that are used both for library instruction and for loan to faculty and staff.¹²

CHALLENGES AND FUTURE DIRECTIONS

Challenges encountered to date when using the SHIRP portable lab have taken the form of relatively minor inconveniences. For example, when assembling the lab, existing training equipment was used, including an LCD projector that is larger than ideal. Fitting the projector into the case with all of the laptops, their accessories, and the router can be done when the lab is to be shipped by air, but creative packing is required. As a result of this tight squeeze, the projector is more often than not carried outside of the lab travel case in its original travel bag when driving to a training destination. When transporting the lab on the ground, using a minivan tends to work the best because it is easier and safer for a single person to load the lab's bulky travel case into the back cargo area of a minivan, rather than the trunk of a car. The bulk of the lab also makes the telescoping handle and wheels a must, but moving through snowy parking lots during the winter quickly results in clogged wheel wells. This makes movement more difficult and care must be taken, particularly when visiting long-term-care facilities, to ensure that the snow lodged in the wheel wells does not melt and create slipping hazards in hallways or the room used for training.

In terms of operating the lab in the health facilities, SHIRP is an entity that is separate from the health regions, so cooperation from regional IT staff has been essential. Most regions have had no reservations about allowing the SHIRP lab to connect to the local network, but there have been situations where IT staff required some convincing. In some cases, network settings do not allow foreign equipment to connect to the network and adjustments have to be made. In other instances, IT staff requires modifications to the lab set up, such as using a wired connection to the network rather than wireless. The wireless router has worked well the majority of the time, but there has been the odd case where it did not. For example, in one case a training session was held in a meeting room that was located in the basement, and the nearest network connection was in an office located several meters down the hall and around the corner. As a result, the wireless signal that penetrated the walls was weak to the point of being largely unusable.

Library instruction continues to be an important part of SHIRP's service to rural health care providers, and the SHIRP staff hopes to increase the use of the lab for training independent practitioners as more and more of them become aware of what is available. Other potential uses for the SHIRP portable lab in the future include using the equipment to conduct usability testing on the SHIRP Web site, and offering sessions on general computer usage skills.

CONCLUSION

The SHIRP portable lab has been a sound investment. The hands-on sessions made possible by the lab allow for more effective training opportunities for a population that is

accustomed to learning by doing, and the response from SHIRP patrons has been very positive. Looking back on the past two years, the SHIRP experience has proven to be quite similar to that encountered by staff at Louisiana State University Health Sciences Center-Shreveport, and, as with the Penn State Farm Management Extension Program portable labs, outreach services for a previously underserved population have successfully been improved. Very few problems have been encountered along the way, and the availability of hands-on training for both students and health care practitioners at small rural health facilities that are not normally afforded the luxury of such training on-site continues to be a considerable factor in the requests for training received by the SHIRP office. It is also an encouraging sign of success that other Canadian libraries with similar mandates have followed SHIRP's lead to create portable computer labs of their own.

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